CHAPTER 8.0: WATER SHORTAGE CONTINGENCY PLAN

8.1 Urgency Ordinance

With population growth, energy shortages, earthquakes, and the threat of terrorism experienced by California; maintaining the gentle balance between water supply and demand is a complicated task that requires planning and forethought. In the event that a water shortage occurs, simple measures can be implemented to conserve the water supply at a public level.

Urgency Ordinance No.91–02 (Appendix E) enables the YLWD Board of Directors to adopt an emergency water management program if the necessity is found. In addition, the California legislature enacted in 1949 specific statutory authority for rationing applicable to all public water supply distributors (California Water Code, Sections 350–358). The water supplier does not have to be in an actual drought condition where there is not enough water for human consumption, sanitation, and fire protection; merely the threat of the condition occurring is enough. Once a local agency has declared the existence of an emergency condition or a water shortage, it is empowered to adopt regulations and restrictions on the delivery and consumption of water to conserve the water supply for the greatest public benefit. Service can, if necessary, be discontinued to customers who willfully violate established regulations.

The following conditions characterize urgency and require the Ordinance to take effect:

1. California is in the fifth consecutive year of drought conditions; and,
2. Precipitation for the current water year is substantially below normal in the watersheds of the water supplies serving Southern California; and,
3. The completion of the State Water Project to Southern California are being cutback; and,
4. Metropolitan has instituted water conservation goals with severe monetary penalties for not meeting the goal; and,
5. MWDOC, as a member agency of Metropolitan, has also instituted water conservation goals with severe monetary penalties for YLWD.
6. YLWD has broad authority to enact water conservation rules under the laws of the State of California; and,
7. The public's adoption of water conservation measures is now, or may be, necessary to avoid or minimize the effects of the water shortage in Southern California.

8.1.1 Stages of Action

In Table 8.1–1: Water Supply Shortage Stages and Conditions, stages are discussed during which various conservation measures will be imposed by Ordinance No. 91-02, beginning with voluntary conservation and leading to various stages of mandatory compliance in the event that the water supply experiences shortages up to a 50% reduction of the water supply.

Table 8.1–1: Water Supply Shortage Stages and Conditions

Water Supply Conditions	Percent Shortage
Level 1: Voluntary Conservation Measures (Targeted 10% Reduction)	
Level 1 measures may be declared by the Board of Directors when, in their judgment, the possibility exists YLWD may not be able to meet all of the demands of its customers without punitive surcharges levied against YLWD due to restrictions on imported supply.	The Board of Directors shall, by separate Resolution, establish voluntary conservation goals and advise customers of ways to conserve water.
Level 2: Mandatory Conservation – Water Watch (Targeted 25% Reduction)	
Level 2 measures, hereinafter referred to as "Water Watch", may be declared by the Board of Directors when, in their judgement, the probability exists that YLWD will not be able to meet all of the water demands of its customers without punitive surcharges levied against YLWD due to restrictions on imported supply.	The Board of Directors shall, by separate Resolution, determine the extent of conservation required by setting a percentage of the Base Target Amount for high priority and low priority water use, advise customers of ways to save water and may enforce such allocation by mandating certain practices.....
Stage 3: Mandatory Reduction – Water Warning (Targeted 35% Reduction)	
Level 3 measures, hereinafter referred to as "Water Warning", may be declared by the Board of Directors when, in their judgment, YLWD will not be able to meet all of the water demands of its customers without punitive surcharges levied against YLWD due to restrictions on imported supply.	The Board of Directors shall, by separate resolution, determine the extent of conservation required, set a percentage of the Base Target Amount for high priority and low priority water use, advise customers of ways to save water and may enforce such allocation by mandating certain practices.....

Table 8.1–1: Water Supply Shortage Stages and Conditions	
Water Supply Conditions	**Percent Shortage**
Stage 4: Water Emergency (Targeted 50% Reduction)	
Level 4 measures, hereinafter referred to as "Water Emergency", may be declared by the Board of Directors when the failure of any supply or distribution facility, whether temporary or permanent, occurs in the water distribution system of the State Water Project, Metropolitan Water District of Southern California, Municipal Water District of Orange County, Orange County Water District or Yorba Linda Water District may seriously affect the ability to supply water to customers.	The Board of Directors shall, by separate Resolution, determine the extent of conservation required, set a percentage of the Base Target Amount for high priority and low priority water use, advise customers of ways to save water and may enforce such allocation by certain practices.

8.1.2 Discussion of the Base Target Amount

1 A Base Target Amount shall be established for each connection in the YLWD corresponding to the average water consumption by meter size for areas with similar land uses, lot or home size, landscape sophistication and economic location for each two month billing cycle in fiscal year 1989–1990.

2 The Base Target Amount for the residential customers may be adjusted to account for families larger than the YLWD wide average of three (3) persons per household at the rate of 100 gallons per day per additional person for four (4) to a maximum of seven (7) persons per household.

3 Customers with multiple metered connections in the same revenue classification, serving similar land uses may, upon approval in advance by the YLWD, allocate the Base Target Amount between their connections.

4 In cases where there is insufficient historical data to establish a Base Target Amount, YLWD shall establish a Base Target Amount by comparing water users similar as to type, lot or home size, landscape sophistication and economic location.

5 The Base Target Amount may be established and adjusted based upon a determination by the Board of Directors of high priority and low priority water uses.

8.2 MINIMUM SUPPLY FOR THE NEXT THREE YEARS

In order to prepare for and prevent water supply shortage, it is useful to estimate the future minimum supply. The minimum water supply available to the Yorba Linda Water District for next three years is estimated based upon the driest three year historic sequence, and is compared to a normal three year estimate. To balance the effects of multiple dry years, more water will be imported from MWDOC resulting in an increase in the minimum supply during multiple dry years compared to normal years.

Through regional modeling efforts, MWDOC has determined minimum water supplies available for the Yorba Linda Water District for each of the next three years, 2006 – 2008. Table 8.2–1: Three–Year Estimated Minimum Water Supply compares supplies available under normal conditions and supplies available under a hypothetical repeat of the historical driest three year period for the Yorba Linda Water District, 1959–1961.

During multiple-dry years, less local supplies are available for retail consumption and retail demands increase, resulting in the use of increased imported supplies from Metropolitan, via MWDOC, to offset the reduction in local supplies. Even with the decrease in local supplies, Yorba Linda Water District is expected to meet all retail consumption during a three–year dry period of 2006–2008 based on the three driest years on record. In addition, Metropolitan is expected to be able to supply all of MWDOC's imported water during the same period. Metropolitan's 2005 Regional Urban Water Management Plan indicates that Metropolitan can provide 100% of the supply demanded by its member agencies until 2030.

Table 8.2–1: Three–Year Estimated Minimum Water Supply (AFY)

Source	Normal Year			Multiple Dry Year		
	2006	2007	2008	2006	2007	2008
Groundwater (Orange County Basin)	12,555	13,876	14,721	12,795	13,833	15,491
Wholesale Water Metropolitan (via MWDOC)	12,372	11,346	10,796	13,804	12,327	11,447
Total	24,926	25,222	25,517	26,599	26,160	26,939

8.3 CATASTROPHIC SUPPLY INTERRUPTION PLAN

As a California jurisdiction, the Yorba Linda Water District could experience a catastrophic interruption in the water supply as a result of a regional power outage, earthquake, terrorism, or other event. A successful recovery plan is dependent upon an in-depth understanding of the vulnerability of each source of supply, delivery system, and distribution system to potential catastrophes. Possible catastrophes are listed in Table 8.3–1 and preparation actions being taken to reduce the severity of each event are discussed below.

Table 8.3–1: Preparation Actions for a Catastrophic Event

Possible Catastrophe	Check if Discussed
Regional Power Outage	√
Earthquake	√
Terrorism	√

8.3.1 Regional Power Outage

The operation of YLWD's groundwater wells and booster pump stations is dependent on the energy source. Backup sources of energy such as propane tanks, emergency generators, and natural gas supplies, are available at many of YLWD's facilities. These alternative energy sources improve the reliability of YLWD's water supply. Additionally, the existence of multiple wells within YLWD's facilities creates redundancy and reduces the likelihood that all wells will be out of service simultaneously.

8.3.2 Earthquake

The Yorba Linda Water Distract has implemented seismic criteria (e.g., seismically actuated valves, flexible piping, etc.) into the design of new reservoirs as the standard since 1997. In addition, flexible piping is used for the gas lines providing power to booster pumps and well sites.

YLWD has developed a comprehensive Emergency Response Plan to address the specific responses to earthquakes, damage assessments, evacuations, and major line breaks. The Emergency Response Plan also identifies agency and mutual aid contacts to help restore YLWD's critical water system infrastructure.

8.3.3 Terrorism

To address terrorism catastrophes, YLWD has completed an extensive Security Vulnerability Assessment according the Sandia National Laboratories Risk Assessment Methodology for Water Systems (RAM-W^{SM}). As part of this project, YLWD prioritized criteria, prioritized facilities, characterized high priority facilities, developed threat scenarios based upon threat assessment methodologies, and used a Scenario-Based Assessment approach to develop recommendations in the form of prioritized lists of security countermeasures. YLWD is currently implementing these recommendations; however, due to the security sensitive nature of the information these recommendations are not included in this Urban Water Management Plan

8.4 PROHIBITIONS AND CONSUMPTION REDUCTION METHODS

YLWD is organized pursuant to the provisions of County Water District law under Division XII of the California Water Code (Section 30000 et seq.). Accordingly, YLWD has the authority to adopt Ordinances and Rules and Regulations to:

1. Restrict the use of water during any emergency situation caused by drought or other conditions.
2. Prohibit the waste of water or the use water during such periods for any purposes other than household, restricted, or nonessential uses as determined by the district.

8.4.1 Water Shortage Planning

8.4.1.1 Metropolitan

In November, 1990, as a result of limited supplies, Metropolitan developed a water conservation program called the Incremental Interruption Conservation Program (IICP), intended to reduce the amount of water delivered to its member agencies under severe deficiencies. The IICP established six levels of reduction by up to 50% depending on drought and water supply conditions. Metropolitan's IICP is no longer in effect.

Revisions of the IICP and deletion of the voluntary stage (Stage I) were adopted by Metropolitan's Board of Directors in the Metropolitan 1995 Drought Management Plan (DMP). This plan included step–by–step strategies for evaluating supply and demand conditions and utilizing Metropolitan's available options. Several phases are incorporated into the DMP with the final phase being the implementation of mandatory stages of the IICP. The 1995 DMP was not implemented in 1995 because of the above normal statewide precipitation in January and February of that year and because Metropolitan received a 100 percent allocation of its State Water Project supply.

As part of the implementation of the regional Integrated Resources Planning (IRP), Metropolitan developed a Water Surplus and Drought Management (WSDM) Plan for Southern California in April 1999. The guiding principle of the WSDM Plan is to manage Metropolitan's water resources and water management programs to minimize the adverse impacts of water supply shortages to retail customers. The WSDM Plan contains specific actions to be taken in drought conditions to meet consumptive demands for water. This plan directs Metropolitan's resource operations to help attain the region's 100% reliability goal. The WSDM Plan was updated in

2004 to account for changes impacting supplies from the Colorado River and California's Bay–Delta. In the past, Metropolitan has developed drought management plans that simply addressed shortage actions and primarily focused on issues of short–term conservation and allocation of imported water. The WSDM Plan recognizes the interdependence of reliability. The overall goal of the WSDM Plan is to ensure that shortage allocation of Metropolitan's imported water supplies is not required.

8.4.1.1 Yorba Linda Water District

YLWD has implemented many of the voluntary and mandatory programs identified in Chapter 6 of this Plan. These programs are designed to either increase local supply and/or reduce consumption during short term and/or long term deficiency periods. YLWD's response to water supply shortages is only part of a coordinated effort that includes, but is not limited to, planning by Metropolitan, MWDOC, OCWD, other agencies adjacent to the District, the City of Yorba Linda and other cities in YLWD's jurisdiction.

Yorba Linda Water District has many water conservation programs and practices in place. A decrease in the reliable water supply from imported sources and the yearly increases in population require that Yorba Linda Water District encourage the best and most efficient use of water within the service area. Toward this end the measures, programs and practices described in this Chapter have been implemented by the District.

The precise timing to implement the voluntary or mandatory programs and the extent to which these programs are implemented will depend upon the best available facts at the time a decision needs to be made. Implementation may vary according to the perceived need, confirmation of the severity of an actual shortage and anticipated duration of the shortage.

Reference is made to the 2005 Urban Water Management Plans adopted by Metropolitan Water District of Southern California and Municipal Water District of Orange County, and to Orange County Water District's "2020 Plan".

8.4.2 Consumption Reduction Methods and Mandatory Prohibitions

Exhibit "A" of Ordinance 91–02 urges residential, commercial, and public water consumers to adopt voluntary water conservation measures. The Water Conservation Practices contained in the Ordinance are listed below in Table 8.4–2: Consumption Reduction Methods. Voluntary water conservation goals (i.e. reduction percent) shall be established by the Board of Directors by a Resolution in the event that urgency exists. As addressed in Table 8.1–1: Water Supply Shortage Stages and Conditions, the Board of Directors has the authority to mandate such conservation practices by separate Resolution. The resolution shall address the extent of conservation required by setting a percentage of the Base Target Amount for high priority and low priority water use, and advise customers of ways to save water.

Table 8.4–2: Consumption Reduction Methods and Prohibitions

	Consumption Reduction Methods and Prohibitions	Actuation Stage
	Customer Actions	
1.	Check monthly for plumbing leaks and any leaks found should be repaired immediately.	Level 1
2.	Irrigate commercial nurseries, golf courses, parks, school yards, traffic medians and other public open space and other non residential landscaped areas no more often than every third day, and only between the hours of 6:00 p.m. and 5:00 a.m.	Level 1
3.	Reduce outside irrigation schedules to the absolute minimum to keep important plants alive. Withhold fertilizer to inhibit new growth.	Level 1
4.	Residential customers with addresses ending with an even number water lawns, landscaping and other turf areas only on even number days of the month and between the hours of 4:00 p.m. and 10:00 a.m. Residential customers with addresses ending with an odd number water lawns, landscape, and other turf areas only on odd number days of the month and between the hours of 4:00 p.m. and 10:00 a.m.	Level 1

Table 8.4–2: Consumption Reduction Methods and Prohibitions		
Consumption Reduction Methods and Prohibitions		**Actuation Stage**
5.	Adjust sprinklers to avoid “watering” sidewalks and gutters, and lower pressure to avoid creating a wasteful mist.	Level 1
6.	Eliminate washing of sidewalks, walkways, buildings, walls, patios, driveways, parking areas or other paved surfaces, or walls except to eliminate conditions dangerous to public health or safety or when required as surface preparation for the application of architectural coating or painting, and to alleviate immediate fire hazards.	Level 1
7.	Curtail water use to clean, fill or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetical structures unless such water use is approved in advance by YLWD.	Level 1
8.	Curtail water used for the initial filling or refilling of swimming pools, spas or ponds unless such water use is approved in advance by YLWD. Replacement due to evaporation is permitted.	Level 1
9.	Curtail washing of motor vehicles, trailers, boats and other types of equipment unless a bucket and a hose equipped with a positive shutoff nozzle for quick rinses is used. Washing of vehicles may be done by a commercial car wash that uses recycled water.	Level 1
10.	Display notice that water will be served only upon request at all restaurants, hotels, cafes, cafeterias or other public place where food is sold, served or offered for sale.	Level 1
11.	Water should only be served when requested by a customer in restaurants, hotels, cafes, cafeterias or other public places where food is sold or offered for sale.	Level 1

Table 8.4–2: Consumption Reduction Methods and Prohibitions		
Consumption Reduction Methods and Prohibitions		**Actuation Stage**
12.	Post notice of the water supply shortage in each room of hotels, motels, inns, guest houses, bed and breakfast facilities and short–term commercial lodgings along with an explanation of necessary compliance measures taken by the establishment.	Level 1
13.	Install low–flow shower heads, toilet dams or low–flow toilets, and faucet flow restrictors in each room of hotels, motels, inns, guest houses, bed and breakfast facilities and short–term commercial lodgings.	Level 1
14.	Hand water plants with a positive shut–off hose nozzle.	Level 1
15.	Place a plastic bottle, bag or dam in all toilets.	Level 1
16.	Use automatic dish and clothes washers for full loads only.	Level 1
17.	Insulate hot water pipes to reduce waiting time for hot water. Install circulating hot water system or point-of-use water heater.	Level 1
18.	Turn off the water while brushing teeth, washing hands and/or shaving.	Level 1
19.	Install water saving shower heads and/or flow restrictors.	Level 1
20.	Take shorter showers. Turn off the water when lathering, shampooing, or shaving. Turn the shower back on to rinse.	Level 1
21.	Capture bath/shower warm–up water in buckets and use the water to irrigate plants or to flush toilets.	Level 1
22.	Use garbage disposers sparingly.	Level 1
23.	Do not plant any annuals or new plants that will require extra watering.	Level 1

Table 8.4–2: Consumption Reduction Methods and Prohibitions		
Consumption Reduction Methods and Prohibitions		**Actuation Stage**
24.	Place mulching material in landscaped areas to decrease soil moisture evaporation.	Level 1
25.	Use a broom to clean outside patios, porches and sidewalks.	Level 1
26.	Cover spas and swimming pools when not in use. If spa or pool will not be used, make necessary preparations for not refilling the spa or pool while shortage lasts.	Level 1
District Actions		
1.	Limit use of water from fire hydrants to fire fighting, approved construction activities or other activities as approved by YLWD as necessary to maintain the health, safety and welfare of the public.	Level 1
2.	Turn off all construction meters until the condition(s) causing the shortage are abated to the satisfaction of the General Manager.	Level 1
3.	Issue no construction meters for earth work or road construction purposes.	Level 1
4.	Moratorium on new service connections.	Level 1

8.5 Enforcement

8.5.1 Penalties

The following enforcement measures shall apply to any customer who willfully disregards any of the mandated and/or prohibited water management practices.

Table 8.5–1: Penalties and Charges

Penalties	Stage When Penalty Takes Effect
Warning	1st Violation
Letter Explaining Violation	2nd Violation
Flow Restricting Orifice	3rd Violation
Charges	**Stage When Penalty Takes Effect**
Excess Water Use Rate	Any Violation
One–Time Charge of Two Times the Latest Water Bill	2nd Violation
Charge for Costs of Installation and Removal of Flow Restricting Orifice	3rd Violation

8.5.1.1 First Violation

A written warning shall be mailed to the customer. The warning shall state the violation and that if the matter is not corrected, additional enforcement measures may be taken.

8.5.1.2 Second Violation

A letter shall be mailed to the customer explaining the violation and a one time charge equal to two times the most recent water bill will be charged to the customer.

8.5.1.3 Third Violation

An orifice flow restrictor will be inserted into the customer's meter to reduce the rate of flow. The orifice will remain in the service line for one billing cycle. The customer shall pay the cost to insert and remove the orifice flow restrictor.

8.5.1.4 Fourth and Subsequent Violations

Service of water will be subject to further restriction with an orifice or termination of service. The term is at the General Manager's discretion so as to minimize the health and safety affects to the customer.

8.5.1.5 Excess Water Use Rate

Water consumption in excess of the Base Target Amount or percentage of the Base Target Amount established or as modified by the Board of Directors will be charged to YLWD's current water rate plus a surcharge equal to the accumulative cost per acre foot of any penalty rate adopted by Metropolitan plus any penalty rate adopted by MWDOC plus any penalty rate adopted by OCWD converted to a unit cost per on hundred cubic feet.

8.5.2 Due Process Procedures

8.5.2.1 Notification

The General Manager shall notify a customer that YLWD intends to surcharge water usage or to restrict or shut off water service. In the cases of flow restriction or shut off, the notice shall be delivered at least 72 hours in advance. The General Manger shall provide an opportunity to the customer within that time to dispute YLWD's determination of non–compliance with Ordinance No. 91–02 (Appendix E) or to demonstrate that compliance has been achieved subsequent to the notice.

8.5.2.2 Compliance Period

The General Manager may revoke, modify, or extend time for compliance with a notice of intent to surcharge water usage or to restrict or shut off water service if the General Manager is reasonably satisfied that such action will be consistent with the best interests of YLWD and/or the purposes of Ordinance No. 91–02 (Appendix E).

8.5.2.2 Restoration of Service

The General Manager shall provide for restoration of restricted or shutoff service upon a determination that appropriate steps to assure compliance with Ordinance No. 91–02 (Appendix E) have been taken. The customer shall be responsible, as a precondition of service restoration, to pay YLWD's normal and usual shutoff and turn–on fees and to comply with such other YLWD Rules and Regulations as apply to customers' service shutoff for nonpayment of water bills.

8.6 REVENUE IMPACT ANALYSIS

In the event that a decrease in water supply occurs for an extended period of time, YLWD could face a potential loss requiring the water enterprise to draw from any reserves and also re–examine the revenue stream in order to balance the budget. It is thus important to consider possible measures to overcome revenue and expenditure impacts.

8.6.1 Measures to Overcome Revenue Impacts

Table 8.6–1: Proposed Measures to Overcome Revenue Impacts

Names of Measures	Check if Discussed
1. Rate Adjustment	√
2. Water Fund Balance	√
3. Bonds	√

1. Rate Adjustment

Should YLWD experience a significant decrease in water supplies for an extended period of time, the Board of Directors would consider a water rate increase or water fee surcharge to cover any revenue shortfall due to water shortages or conservation measures.

2. Water Fund Balance

YLWD maintains a Water Fund Balance that can be drawn upon for minor revenue shortfalls that need to be addressed immediately from decreased water supplies. The Board of Directors would consider a rate increase to restore this fund for future unexpected emergency situations.

3. Bonds

YLWD maintains a high bond rating in order to secure bonds for unexpected facility replacements and repairs.

8.6.2 Measures to Overcome Expenditure Impacts

Table 8.6–2: Proposed Measures to Overcome Expenditure Impacts	
Names of Measures	**Check if Discussed**
1. Capital Improvements Program	√

1. Capital Improvements Program

The Yorba Linda Water District is committed to increasing their ability to produce groundwater from the Santa Ana Basin by means of improvements to their water system. These improvements will reduce YLWD dependency on more expensive water purchased from MWDOC.

8.7 REDUCTION MONITORING PROCEDURE

Table 8.7–1: Water Use Monitoring Mechanisms	
Mechanisms for Determining Actual Reductions	**Type of Data Expected**
1. Production Meter Readings	GPD
2. Imported Water Metering	GPD
3. Residential Water Metering and Site Monitoring	GPD

1. Production Meter Readings

YLWD has meters on all wells that provide access to daily water use readings. An analysis of the daily production meter readings will provide values for actual reductions in water use.

2. Imported Water Metering

YLWD has meters on all imported water connections that provide access to readings of daily quantities of imported water.

3. Residential Water Metering and Site Monitoring

During stages of mandatory conservation, YLWD will conduct monthly residential meter readings and site monitoring, as necessary. Site monitoring will be prioritized based upon the amount of water consumed. For those customers not in compliance with the mandatory conservation, YLWD will manually shut-off the connection until compliance is confirmed.